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ments from ancient Indian mounds, without ever seeing any made of the pipe-stone. Acting on this suggestion, Dr. H. examined such works as were within his reach, and he could not ascertain that the numerous and careful explorations of the mounds in the Mississippi Valley have as yet revealed any ornaments made from this rock. The Indians must therefore have discovered the quarry since the stone age.

Dr. H. exhibited a number of ornaments manufactured from the Pipestone by the North-west Fur Company. They consist of pipes of various patterns and sizes, cups, candlesticks, etc. They are turned in a lathe. Within a year or two this company have made nearly two thousand pipes, which they send up to the Upper Missouri Indians, near the foot of the Rocky Mountains, and trade them for a robe a-piece. Hereafter some doubt will be thrown upon the genuineness of these Indian pipes.

On favorable report of the Committee the following were ordered to be published.

On the Period and Ratio of the Annual Increase in the Circumference of Trees.

BY THOMAS MEEHAN.

The following experiments were instituted in order to ascertain whether the production of wood in trees was more rapid during some portions of the growing season than others, and at what periods growth commenced and ceased in the species of tree chosen.

The Carolina poplar (*Populus monilifera* Ait.) was selected on account of its rapid growth, enabling me to easily note the increase of circumference each seven days.

The following table shows the result. For the sake of system, the same day in the week was chosen. In order to tabulate the figures, the same date is used for the three years; but as the same day fell on different dates, there is a difference of three days in each date. For instance, May 17 in 1863 is May 18 in 1862 and May 20 in 1866—the three years during which the measurements were taken.

1866.	1862.	1863.	1866.
	Ft. In.	Ft. In.	Ft. In.
April 12 (Male catkins in flower.)			
“ 15.....			3-6 $\frac{3}{4}$
“ 22. (Leaf buds burst).....			3-6 $\frac{3}{4}$
“ 29.....			3-6 $\frac{3}{4}$
May 6.....		2-3	3-7
“ 13.....		2-3	3-7 $\frac{1}{4}$
“ 20.....		2-3 $\frac{1}{4}$	3-7 $\frac{1}{2}$
“ 27.....	1-10	2-3 $\frac{3}{8}$	3-7 $\frac{3}{4}$
June 3.....	1-10 $\frac{1}{2}$	omitted	3-8
“ 10.....	1-10 $\frac{3}{4}$	2-3 $\frac{3}{4}$	3-8 $\frac{1}{4}$
“ 17.....	1-11	2-4 $\frac{1}{2}$	3-9 $\frac{1}{8}$
“ 24.....	1-11 $\frac{3}{4}$	2-4 $\frac{3}{4}$	3-9 $\frac{1}{4}$
July 1.....	2-	omitted	omitted
“ 8.....	2- $\frac{1}{4}$	2-5 $\frac{1}{4}$	3-9 $\frac{3}{4}$
“ 15.....	omitted	2-5 $\frac{3}{8}$	3-10 $\frac{1}{8}$
“ 22.....	2-1 $\frac{1}{2}$	2-5 $\frac{5}{8}$	3-10 $\frac{1}{2}$
“ 29.....	2-2	2-6 $\frac{1}{2}$	3-10 $\frac{3}{8}$
Aug. 5.....	2-2 $\frac{1}{4}$	2-6 $\frac{3}{4}$	3-10 $\frac{5}{8}$
“ 12.....	2-2 $\frac{1}{2}$	2-6 $\frac{3}{4}$	3-10 $\frac{5}{8}$
“ 19.....	2-2 $\frac{3}{4}$	2-6 $\frac{3}{4}$	3-11 $\frac{1}{4}$
“ 26.....	2-3	2-6 $\frac{3}{4}$	3-11 $\frac{1}{4}$
“ 31.....	2-3	2-6 $\frac{3}{4}$	3-11 $\frac{1}{4}$
			[Oct.

From these figures it appears the tree increased in growth only during the three months between middle of May and middle of August, and that the ratio of growth is much greater during the month between middle of June and middle of July than during the month preceding and the succeeding month.

Third Contribution to the History of the BALÆNIDÆ and DELPHINIDÆ.

BY EDWARD D. COPE.

DELPHINIDÆ.

ORCA DESTRUCTOR mihi sp. nov.

Among the species of this carnivorous genus of Cetaceans, the present exhibits the most compact and powerful structure, and it, no doubt, is fully equal to any of them in its sanguinary habits. The breadth of the premaxillary bones allies it to the species *crassidens* and *meridionalis*, which have been called *Pseudorca* by some.

It differs from the latter species in the greater breadth and obtuseness of the muzzle of its cranium and mandible—all we possess of it—and in the smaller number of teeth; the premaxillary bones are relatively narrower throughout the greater part of their length.

The width of the muzzle at the lateral maxillary notch is a trifle less than three-fourths the length from that point to the end of the muzzle; the width at the fifth tooth is a little greater, and quite three-fourths that distance. The premaxillary triangle is smooth, concave on each side the medium fissure, and extends to opposite the penultimate tooth. Teeth $\frac{8}{9}$, the posterior tooth being the last of the maxillaries, instead of the mandibulars, as in *meridionalis*. The teeth occupy closely the intervals of the opposing series; those of the mandible are directed well outwards anteriorly. The intermaxillaries form an elevated ridge exteriorly opposite the notch; opposite the fifth tooth above each is less than double the width of maxillary exposed exterior to it. Behind the last tooth the margin of the maxillary is flared upwards in a steep arch; from opposite malar process to posterior tooth equals from posterior margin of latter to same of antepenultimate tooth. The mandibles are much depressed distally, and the symphysis equals one-third the length of the muzzle from the notch; the chin projects beyond the broad extremity of the premaxillaries. Measurements:—

	in.	lin.
End of muzzle to glenoid cavity.....	20	7
“ “ maxillary notch.....	11	6
“ “ last tooth (straight).....	9	6
Length of symphysis.....	4	
“ ramus mandibuli to condyle.....	20	3
Breadth of muzzle at notch.....	8	4.5
“ “ fifth tooth.....	8	6
“ “ anterior tooth.....	4	
Depth of ramus at last tooth.....	3	1
“ “ coronoid process.....	6	2

One specimen (No. 3679) is in the Museum Smithsonian Institution, Washington, from the Southern Pacific ocean, off Paita, Peru.

BELUGA ANGUSTATA m. sp. nov. *Beluga catodon* m. Proc. Academy, 1865, 278.

A study of the skeleton of the *Beluga catodon* (or *leucas*), deposited by the Smithsonian Institution in the Museum of Columbia College, Washington, convinces me that the species which I formerly regarded as the same is really quite different. For the present the following comparison will suffice:—
1866.]